

Amendments to Claims

What is claimed is:

Claim 1 (Currently Amended) . A method for monitoring and controlling the biocatalytic efficiency of a wastewater treatment process comprising:

- a) providing an activated sludge environment comprising:
 - (i) a carbon influx;
 - (ii) cultures of autotrophic, heterotrophic and facultative microorganisms;
 - (iii) a feed nutrient; and
 - (iv) an end electron acceptor
- b) sampling wastewater from anaerobic, anoxic and/or aerobic stages of the treatment process;
- c) measuring the concentration of an internal storage molecule selected from the group consisting of polyhydroxyalkanoates and glycogen, which is present in the sample, to determine the status of a selected sample characteristic; and
- d) adjusting the feed nutrient in the activated sludge environment depending on the status of the selected sample wherein the biocatalytic efficiency of a wastewater treatment process is controlled.

Claim 2 (Canceled) .

Claim 3 (Currently Amended) . The method according to Claim 21, wherein when the concentration of polyhydroxyalkanoates is greater than about 15 to about 20 dry weight percent of the biomass, there is an indication that the biocatalytic efficiency of the wastewater treatment process is impaired.

Claim 4 (Original) . The method according to Claim 1, wherein the sampling is *in situ*.

Claim 5 (Original). The method according to Claim 1, wherein the sampling is continuous.

Claim 6 (Original). The method according to Claim 1, wherein the carbon influx comprises a compound selected from the group consisting of, amines, alcohols, organic acids, carbohydrates, proteins, and amino acids.

Claim 7 (Original). The method according to Claim 1, wherein the cultures of autotrophic, heterotrophic and facultative microorganisms comprise organisms selected from the group consisting of alpha, beta, and gamma Proteobacteria.

Claim 8 (Original). The method according to Claim 7, wherein the alpha, beta, and gamma Proteobacteria are selected from the genera consisting of *Paracoccus*, *Rhodococcus*, *Pseudomonas*, *Alcaligenes*, *Acinetobacter*, *Sphingomonas*, *Azoarcus*, and *Burkholderia*.

Claim 9 (Original). The method according to Claim 1, wherein the feed nutrient is selected from the group consisting of nitrate, ammonia, sulfate, sulfide, urea and phosphate.

Claim 10 (Original). The method according to Claim 1, wherein the end electron acceptor is selected from the group consisting of oxygen, nitrate, nitrite, nitrous oxide, ferric oxide, and sulfate.

Claim 11 (Currently Amended). The method according to Claim 21, wherein the polyhydroxyalkanoates are comprised of compounds selected from the group consisting of hydroxybutyrate and hydroxyvalerate.

Claim 12 (Original). The method according to Claim 1, wherein the sample characteristic is selected from the group consisting of denitrification efficiency, nitrate concentration, ammonia concentration, sulfate concentration, phosphate concentration, and carbon dioxide concentration.

Claims 13 – 16 (Canceled)